831/D

Identification and mapping the distribution of water quality parameters in Gandara Devinuwara area in Matara District

C.G.Chandena[1], Ranjana U.K Piyadasa[2], K.D.N Weerasinghe[3] and Janitha A.Liyanage[4]
[1] *Department of Geography, University of Ruhuna, Matara*
[2] *Department of Geography, University of Colombo, Colombo 03*
[3] *Department of Agriculture Engineering, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya*
[4] *Department of Chemistry, University of Kelaniya, Kelaniya*

In 2004 due to the Tsunami strategy of southern coastal belt was highly affected. Therefore it was very important to determine if the water quality in these areas are comparable to Sri Lankan standards. The main objective of this study was to explore quality of existing well water in the Gandara area and map the distribution of water quality parameters using GIS techniques. Twenty dug wells were selected for analysis on the basis of three EC levels (<500500 µS/cm, 500-1000 µS/cm and >1000 µS/cm) affected and non-affected nature of the Tsunami disaster. The dug wells were monitored once a month from March to July 2008. The Electrical Conductivity (EC), TDS, Salinity and pH were measured in the water samples using portable meter that was calibrated against commercially available standards prior to analyzing. From the average values of EC, TDS, Salinity and pH, distribution maps were prepared applying interpolating techniques in ArcView GIS software.

Electrical Conductivity of groundwater in tsunami-affected areas tends to change with atmospheric precipitation. This is associated with the effective recharge of groundwater from inland areas. Recharge of infiltrated precipitate water through the unsaturated zone in the inundated areas due to the tsunami helps to wash the salts deposited in the unsaturated zone and change the EC, TDS and salinity levels.

Keywords: tsunami, salinity, GIS, electrical conductivity, recharge

Acknowledgement: We acknowledge the active involvement of the student Ruwan Sampath (2008) in the research program on Groundwater in Tsunami affected areas of the Southern Coastal belt.